PENGARUH SURFAKTAN DODESILAMIN PADA SINTESIS LEMPUNG TERPILAR SiO_2/TiO_2 SERTA APLIKASINYA SEBAGAI FOTOKATALIS DEGRADASI RHODAMIN

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RINGKASAN

Telah dilakukan penelitian pengaruh penambahan surfaktan dodesilamin pada sintesis lempung terpilar silika (SiO_2) dengan interkalasi TEOS (tetraetilortosilikat) dari lempung alam Pontianak. Variasi jumlah penambahan surfaktan dodesilamin bertujuan untuk mengetahui hubungan jumlah surfaktan dodesilamin terhadap *basal spacing*, luas permukaan spesifik, distribusi pori dan volume total pori.

Analisis *basal spacing* menggunakan difraksi sinar X sedangkan luas permukaan spesifik, distribusi pori dan volume total pori menggunakan analisis BET.dan untuk mengetahui absorbansi dari zat warna rhodamin menggunakan spektrofotometer UV-VIS. Tahap pilarisasi terdiri atas dua tahap yaitu tahap interkalasi surfaktan dodesilamin dan TEOS serta tahap kalsinasi pada temperatur 600^oC yang selanjutnya diimpregnasikan $TiCl_3$ kedalamnya dengan variasi volume untuk aplikasinya sebagai fotokatalis degradasi rhodamin.

Basal spacing dan volume total pori lempung terpilar meningkat dengan optimasi pada perbandingan molar dodesilamin 1 : 35 terhadap lempung alam. Luas permukaan lempung terpilar silika meningkat lebih dari 10 kali lipat dibandingkan dengan lempung alam. Luas permukaan spesifik lempung terpilar meningkat dengan meningkatnya penambahan surfaktan dodesilamin. Sedangkan distribusi pori pada lempung terpilar tidak merata disebabkan karena tidak adanya penambahan air dalam sintesis. Aplikasi dari lempung terpilar SiO_2/TiO_2 sebagai fotokatalis reaksi degradasi rhodamin dengan pengaruh radiasi cahaya UV. Semakin banyak TiO_2 yang teremban maka semakin kecil absorbansi dari zat warna Rhodamin.

SUMMARY

The research on the effect of addition of dodesylamine surfactant on the synthesis of sillica pillared clay (SiO_2) by TEOS (tetraethylorthosillicate) intercalation from Pontianak natural clay had been done. Variation on the amount of dodesylamine added was done to find out the influence of surfactant additon on the basal spacing, spesific surface width, pore distribution and pore total volume of the synthesized pillared clay.

Analysis of basal spacing was carried out by X-ray diffraction whereas the spesific surface width, pore distribution and pore total volume were determined by BET methode. Clay pillarization consisted of two main steps, intercalation of dodesylamine and TEOS, and calcination at 600 ^oC.

The research data showed that the basal spacing and pore total volume of pillared clay increased after the surfactant addition and were optimally found at the dodesylamine:natural clay molar ratio of 1:35. The surface area of sillica pillared clay increased more than 10 times of natural clay's. Furthermore, the spesific surface width of clay increased with the increase of dodesylamine addition whereas its pore distribution was found to be inequitable since there was no water addition during synthesis. Photocatalytic application of the synthesized SiO_2/TiO_2 pillared clay was carried out in the degradation of rhodamine by UV radiation. The more TiO_2 impregnated on the clay, the less rhodamine absorbed.

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